

## REMARKS

### Statement Re Interviews

The owner/applicant wishes to thank Examiner Barry for the kind courtesies extended to his attorney Mark Gilbreth during the several telephonic interviews of March 4, 2002.

Per 37 C.F.R. § 1.560(b), the follow statement regarding interviews of March 4, 2002 is provided.

These telephonic interviews were held between Examiner Barry and applicant's attorney Mark Gilbreth. Mr. Gilbreth was confirming that the deadline for response for the remailing of February 1, 2002 having specified period for response of "one month" (i.e., Friday, March 1, 2002), would actually be the longer of "30 days" (i.e., Sunday, March 3, 2002, making response timely on Monday, March 4, 2002).

Mr. Gilbreth also provided Examiner Barry a "heads up" regarding this Response, and said that he was still deciding whether it would supplement or replace the March 1, Response (it is a Supplemental Response).

### Service on 3<sup>rd</sup> Party Requester

A correction to the "Certificate Of Service" attached to the Response filed March 1, 2002 is provided. In preparing this response, Mr. Gilbreth noticed that none of the

attempts at 11:35pm<sup>1</sup> (12 pages), 12:17am (29 pages), or 1:43am (0 pages) was successful. Thus, the 3<sup>rd</sup> Party Requester is being provided a service copy of the March 2002 filing along with the service copy of this Supplemental Response (via Express Mail EV 041 578 460 US).

### **Status of Claims**

Pending: claims 1-16 and 19 and 20.

Cancelled: claims 17, 18 and 21.

In the Response of 3/1/02, claim 2 should have been denoted "Three Times Amended"<sup>2</sup>.

### **Support for Amendments**

Various editorial changes have been made to the claims.

"functionally" deleted from claims 1 and 15. Original claims did not so contain the limitation.

Support for the "weight" ratio limitation can be found in the examples by the "ppm" ratios of the components.

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<sup>1</sup> The clock was set 1 hour fast, but has now been corrected.

<sup>2</sup> (1) the "Amendment Paper" dated 12/5/01 filed with the Reissue Application; (2) the "Communication In Response To The Decision To Merge of March 21, 2001" (i.e., the "Housekeeping Amendment"); and (3) the Amendments of the March 1, 2002 Response.

**Request For Allowance**

Prompt allowance of all claims is respectfully requested. Examiner Barry is kindly invited to contact applicant's attorney, Mark Gilbreth at 713/667-1200 to discuss any matters in this proceeding.

Respectfully submitted,

Date: **March 1, 2002**

  
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## CLEAN COPY OF THE CLAIMS

This "Clean Copy" of the claims is to replace the "Clean Copy" as provided in the Response filed March 1, 2002.

This "Clean Copy" reflects the following Amendments to the Originally issued '435 patent claims: (1) the "Amendment Paper" dated 12/5/01 filed with the Reissue Application; (2) the "Communication In Response To The Decision To Merge of March 21, 2001" (i.e., the "Housekeeping Amendment"); (3) Examiner's Amendments recited in the 8/16/01 Office Action; and (4) the Amendments of the March 1, 2002 Response.

This "Clean Copy" DOES NOT reflect the amendments made in the "Response To Office Action Mailed 12/04/00" of the '5710 Reexamination, as those were indicated in the 8/16/01 Office Action as being "superceded by the amendments made to *inter alia* claims 1 and 15 in the 'housekeeping' amendment."

### "Clean Copy"

1. A method for dewatering biological sludge that has been digested by a thermophilic digestion process comprising:
  - a. adding at least one polymeric quaternary ammonium compound, as a primary component, to the biological sludge; and
  - b. adding polyacrylamide to the biological sludge;
  - c. coagulating the biological sludge to form microflocs whereby said at least one polymeric quaternary ammonium compound functions as a primary component in forming microflocs; and
  - d. flocculating the microflocs with at least one polyacrylamide such that the combinations of the polymeric quaternary ammonium compound and of the polyacrylamide enhances dewatering of the sludge.
2. The method for dewatering biological sludge according to claim 1, wherein the polymeric quaternary ammonium compound is from the di-allyl di-methyl ammonium chloride (DADMAC) family.
3. The method for dewatering biological sludge according to claim 1, wherein the polymeric quaternary ammonium compound is from the epichlorohydrin di-methyl amine (epi-DMA) family.
4. The method for dewatering biological sludge according to claim 1, wherein said at least one polymeric quaternary ammonium compound is added directly to the sludge and, upon formation of microflocs of the sludge from said at least one polymeric quaternary

ammonium compound, wherein at least said one polyacrylamide is a cationic polyacrylamide and is added to form a floc that dewateres the sludge.

5. The method for dewatering biological sludge according to claim 4, wherein the polymeric quaternary ammonium compound and the cationic polyacrylamide are in an approximately 1:1 ratio (by weight), with the cationic polyacrylamide having a higher molecular weight than the polymeric quaternary ammonium compound does.

6. The method for dewatering biological sludge according to claim 4, wherein the ratio of said at least one polymeric quaternary ammonium compound with respect to said at least one cationic polyacrylamide range from about 1:10 to about 20:1 (by weight).

7. The method for dewatering biological sludge according to claim 4, wherein the polymer concentration to solid ratio of total polymer dosage requirement in relationship to percentage of solids component of the sludge is between about 50 ppm:1 percent and about 300 ppm:1 percent.

8. The method for dewatering biological sludge according to claim 1, wherein the polymeric quaternary ammonium compound is added directly to the sludge, in an amount sufficient to cause formation of a cationic overcharge within a developed microfloc system, and an anionic polyacrylamide is then added for final floc formation.

9. The method for dewatering biological sludge according to claim 8, wherein the polymeric quaternary ammonium compound is added to the sludge in a quantity that is approximately 20 to approximately 30 percent higher than any quantity of the polymeric quaternary ammonium compound that is added in claim 4.

10. The method for dewatering biological sludge according to claim 8, wherein the polymeric quaternary ammonium compound and the anionic polyacrylamide are in an approximately 10:1 ratio (by weight), with the anionic polyacrylamide having a higher molecular weight than the polymeric quaternary ammonium compound.

11. The method for dewatering biological sludge according to claim 10, wherein the anionic polyacrylamide is about 40% anionic.

12. The method for dewatering biological sludge according to claim 8, wherein the ratio of said at least one polymeric quaternary ammonium compound to the anionic polyacrylamide range from about 1:10 to about 20:1 (by weight).

13. The method for dewatering biological sludge according to claim 8, wherein the polymer concentration to solids ratio of total polymer dosage requirement in relationship

to percentage of solids component of the sludge is between approximately 50 ppm:1 percent and approximately 300 ppm:1 percent.

14. The method for dewatering biological sludge according to claim 1, wherein the biological sludge is mixed with primary sludge.

15. A composition for dewatering biological sludge that has been digested by a thermophilic digestion process according to claim 1 comprising at least one polymeric quaternary ammonium compound, as a primary component, and polyacrylamide, said components being present in the composition in a ratio to enable the at least one ammonium compound to function as a primary component in forming microflocs for the biological sludge and the composition to function as an agent for dewatering biological sludge from a thermophilic digestion process.

16. The method for dewatering biological sludge according to claim 1, wherein the polyacrylamide and said at least one polymeric quaternary ammonium compound is used in solution or in dry form.

17. Cancelled.

18. Cancelled.

19. The method of claim of claim 15 wherein the polyacrylamide is cationic or anionic.

20. The composition of claim 15 wherein the polyacrylamide is cationic or anionic.

21. Cancelled.